

REMARKS

Claims 1, 2, 4-11, and 16-29 are now pending in the application. Claims 3, and 12-15 are cancelled. Claims 28 and 29 are new. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

STATEMENT OF COMMON OWNERSHIP UNDER 35 U.S.C. § 103(c)

Applicants note that Sakagami et al. (U.S. Pub. No. 2005/0122360) is cited as 35 U.S.C. § 102(e) prior art in rejections of the claims under 35 U.S.C. § 103(a). Applicants, through their undersigned representative, make the following statement as to common ownership to disqualify the reference under 35 U.S.C. 103(c) as prior art:

Application No. 10/806,031 (the present application) and U.S. Pub. No. 2005/0122360 (the cited reference) were each, at the time the invention was made, owned by, or subject to an obligation of assignment to Seiko Epson Corporation.

As further objective evidence regarding common ownership, Applicants note that the assignment of the present application to Seiko Epson Corporation was recorded on August 2, 2004 at Reel/Frame: 015648/0458 and that the assignment of U.S. Pub. No. 2005/0122360 to Seiko Epson Corporation was recorded on July 26, 2004 at Reel/Frame: 015610/0191.

For these reasons, the Sakagami et al. (U.S. Pub. No. 2005/0122360) reference is disqualified under 35 U.S.C. 103(c) as prior art in rejections under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and 706.02(l)(2).

REJECTION UNDER 35 U.S.C. § 103

Claims 1, 2, 12, 23, 27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hirano (U.S. Pat. No. 5,731,826) in view of Usui et al. (U.S. Pub. No. 2002/0170353). As to claim 12, the rejection is rendered moot. As to claims 1, 2, 23, and 27, the rejection is respectfully traversed.

Claim 1 recites that the ejection failure detecting and recovery processing determining means judges that: an air bubble has intruded into the cavity in the case where the cycle of the residual vibration of the diaphragm is shorter than a predetermined range of cycle; the liquid in the vicinity of the nozzle has thickened due to drying in the case where the cycle of the residual vibration of the diaphragm is longer than a predetermined threshold; and paper dust is adhering in the vicinity of the outlet of the nozzle in the case where the cycle of the residual vibration of the diaphragm is longer than the predetermined range of cycle and shorter than the predetermined threshold. Hirano and Usui et al. fail to teach or suggest such ejection failure detecting and recovery processing determining means.

As noted by the Examiner, Hirano and Usui et al. do not disclose ejection failure detecting and recovery processing determining means as described above. Office Action, mailed 2/24/2006, p. 15. Applicants note that similar limitations were recited by claim 13. With respect to claim 13, the Examiner cited Sakagami et al. as rendering the claimed ejection failure detecting and recovery processing determining means unpatentable.

For the reasons set forth above in the Statement of Common Ownership under 35 U.S.C. § 103(c), however, Sakagami et al. is disqualified under 25 U.S.C. 103(c) as prior art in rejections under 25 U.S.C. 103(a).

For these reasons, claim 1 defines over the prior art and reconsideration and withdrawal of the rejection are respectfully requested. With regard to claims 2, 23, and 27, Applicants note that each either directly or indirectly depends from claim 1, which defines over the prior art as discussed in detail above. Therefore, claims 2, 23, and 27 also define over the prior art and reconsideration and withdrawal of the rejections are respectfully requested. With regard to claim to claim 12, the rejection is rendered moot by cancellation.

Claim 3 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Hirano (U.S. Pat. No. 5,731,826) as modified by Usui et al (U.S. Pub. No. 2002/0170353), as applied to Claim 1 above, and further in view of Ishinaga et al. (U.S. Pub. 2002/0149657). This rejection is rendered moot by cancellation.

Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Hirano (U.S. Pat. No. 5,731,826) as modified by Usui et al. (U.S. Pub. No. 2002/0170353) and Ishinaga et al. (U.S. Pub. 2002/0149657), as applied to Claim 1 above, and further in view of Yamaguchi et al. (U.S. Pat. No. 5,379,061). This rejection is respectfully traversed.

Applicants note that claim 4 depends from claim 1, which defines over the prior art as discussed in detail above. Therefore, claim 4 also defines over the prior art and reconsideration and withdrawal of the rejections are respectfully requested.

Claims 5, 6, 7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hirano (U.S. Pat. No. 5,731,826) as modified by Usui et al. (U.S. Pub. No. 2002/0170353), as applied to Claim 1 above, and further in view of Yamaguchi et al. (U.S. Pat. No. 5,379,061). This rejection is respectfully traversed.

Applicants note that claims 5, 6, and 7 each either directly or indirectly depend from claim 1, which defines over the prior art as discussed in detail above. Therefore, claims 5, 6, and 7 also define over the prior art and reconsideration and withdrawal of the rejections are respectfully requested.

Claims 8 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hirano (U.S. Pat. No. 5,731,826) as modified by Usui et al. (U.S. Pub. No. 2002/0170353) and Yamaguchi et al. (U.S. Pat. No. 5,379,061), as applied to Claim 1 above, and further in view of Fujii (U.S. Pat. No. 6,299,277). This rejection is respectfully traversed.

Applicants note that claims 8 and 9 each either directly or indirectly depend from claim 1, which defines over the prior art as discussed in detail above. Therefore, claims 8 and 9 also define over the prior art and reconsideration and withdrawal of the rejections are respectfully requested.

Claims 10 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hirano (U.S. Pat. No. 5,731,826) as modified by Usui et al. (U.S. Pub. No. 2002/0170353), and Yamaguchi et al. (U.S. Pat. No. 5,379,061) and Fujii (U.S. Pat. No. 6,299,277), as applied to Claim 1 above, and further in view of Hayakawa et al. (U.S. Pub. 2002/0130918). This rejection is respectfully traversed.

Applicants note that claims 10 and 11 each either directly or indirectly depend from claim 1, which defines over the prior art as discussed in detail above. Therefore, claims 10 and 11 also define over the prior art and reconsideration and withdrawal of the rejections are respectfully requested.

Claims 13-21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hirano (U.S. Pat. No. 5,731,826) as modified by Usui et al. (U.S. Pub. No. 2002/0170353), as applied to Claim 1 above, and further in view of Sakagami et al. (U.S. Pub. 2005/0122360). The rejection as to claims 13-15 are rendered moot by cancellation. The rejection as to claims 16-21 are respectfully traversed.

For the reasons set forth above in the Statement of Common Ownership under 35 U.S.C. § 103(c), however, Sakagami et al. is disqualified under 25 U.S.C. 103(c) as prior art in rejections under 25 U.S.C. 103(a).

Applicants note that claims 16-21 each either directly or indirectly depend from claim 1, which defines over the prior art as discussed in detail above. Therefore, claims 16-21 also define over the prior art and reconsideration and withdrawal of the rejections are respectfully requested.

Claim 22 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Hirano (U.S. Pat. No. 5,731,826) as modified by Usui et al. (U.S. Pub. No. 2002/0170353) as applied to claim 1 above, and further in view of Nojima et al. (U.S. Pat. No. 6,168,263). This rejection is respectfully traversed.

Applicants note that claim 22 depends from claim 1, which defines over the prior art as discussed in detail above. Therefore, claim 22 also defines over the prior art and reconsideration and withdrawal of the rejections are respectfully requested.

Claim 24 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Hirano (U.S. Pat. No. 5,731,826) as modified by Usui et al. (U.S. Pub. No. 2002/0170353), as applied to claim 1 above, and further in view of Izumida et al. (U.S. Pat. No. 5,371,528). This rejection is respectfully traversed.

Applicants note that claim 24 depends from claim 1, which defines over the prior art as discussed in detail above. Therefore, claim 24 also defines over the prior art and reconsideration and withdrawal of the rejections are respectfully requested.

Claim 25 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Hirano (U.S. Pat. No. 5,731,826) as modified by Usui et al. (U.S. Pub. No. 2002/0170353) and Izumida et al. (U.S. Pat. No. 5,371,528), as applied to claim 1 above, and further in view of Hotomi et al. (U.S. Pat. No. 6,145,966). This rejection is respectfully traversed.

Applicants note that claim 25 depends from claim 1, which defines over the prior art as discussed in detail above. Therefore, claim 25 also defines over the prior art and reconsideration and withdrawal of the rejections are respectfully requested.

Claim 26 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Hirano (U.S. Pat. No. 5,731,826) as modified by Usui et al. (U.S. Pub. No. 2002/0170353), as applied to claim 1 above, and further in view of Kono et al. (U.S. Pat. No. 6,322,190). This rejection is respectfully traversed.

Applicants note that claim 26 depends from claim 1, which defines over the prior art as discussed in detail above. Therefore, claim 26 also defines over the prior art and reconsideration and withdrawal of the rejections are respectfully requested.

Claim 28 is new and recites that ejection failure detecting and recovery processing determining means includes an oscillation circuit and the oscillation circuit oscillates in response to an electric capacitance component that varies with the residual vibration of the diaphragm. As noted by the Examiner, such ejection failure detecting and recovery processing determining means are not disclosed by the prior art. Office Action, mailed 2/24//2006, p. 14, comments with regard to claim 14. Further, as noted above, in the Statement of Common Ownership under 35 U.S.C. § 103(c), Sakagami et al. is disqualified under 25 U.S.C. 103(c) as prior art in rejections under 25 U.S.C. 103(a).

Claim 29 is also new and recites that the ejection failure detecting and recovery processing determining means includes an oscillation circuit and the oscillation circuit oscillates in response to an electric capacitance component of the actuator that varies with the residual vibration of the diaphragm. As noted by the Examiner, such ejection failure detecting and recovery processing determining means are not disclosed by the prior art. Office Action, mailed 2/24//2006, p. 14, comments with regard to claim 15. Further, as noted above in the Statement of Common Ownership under 35 U.S.C. § 103(c), Sakagami et al. is disqualified under 25 U.S.C. 103(c) as prior art in rejections under 25 U.S.C. 103(a).

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: June 23, 2006

By:


G. Gregory Schivley
Reg. No. 27,382
Bryant E. Wade
Reg. No. 40,344

- HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600

[GGS/BEW/MPD/cn]